



Victorian Certificate of Education 2002

STUDENT NUMBER

Figures

Words

Letter

SUPERVISOR TO ATTACH PROCESSING LABEL HERE

PSYCH EXAM 2

6

AREA OF STUDY 2 – LEARNING

Question 16

A spider constructing a web is displaying a **behaviour** known as

- A. observational learning.
- B. a fixed action pattern.
- C. a reflex action.
- D. insight learning.

Question 17

In classical conditioning, an organism develops an **association** between the

- A. conditioned stimulus and the conditioned response.
- B. neutral stimulus and the conditioned stimulus.
- C. conditioned stimulus and the unconditioned stimulus.
- D. neutral stimulus and the unconditioned response.

Question 18

Mary's cat runs to the back door when the microwave bell sounds as this usually signals that her dinner is about to be served. The cat also runs to the back door when Mary's doorbell rings.

Mary's cat is demonstrating an example of

- A. stimulus discrimination.
- B. stimulus generalisation.
- C. spontaneous recovery.
- D. extinction.

Question 19

After a meal of seafood, George became ill, suffering from nausea and vomiting. Now George feels nauseated at the sight of seafood and can no longer eat it.

George has experienced

- A. a conditioned reflex.
- B. a phobia.
- C. stimulus discrimination.
- D. taste aversion.

PSYCHOLOGY

Written examination 2

Thursday 7 November 2002

Reading time: 9.00 am to 9.15 am (15 minutes)

Writing time: 9.15 am to 10.45 am (1 hour 30 minutes)

QUESTION AND ANSWER BOOK

Structure of book

Section	Number of questions	Number of questions to be answered	Number of marks
A	45	45	45
B	18	18	45
		Total	90

- Students are permitted to bring into the examination room: pens, pencils, highlighters, erasers, sharpeners and rulers.
- Students are NOT permitted to bring into the examination room: blank sheets of paper and/or white out liquid/tape.
- No calculator is allowed in this examination.

Materials supplied

- Question and answer book of 23 pages.
- Answer sheet for multiple-choice questions.

Instructions

- Write your **student number** on this book.
- Check that your **name** and **student number** as printed on your answer sheet for multiple-choice questions are correct, and sign your name in the space provided to verify this.
- All written responses must be in English.

At the end of the examination

- Place the answer sheet for multiple-choice questions inside the front cover of this book.

Students are NOT permitted to bring mobile phones and/or any other electronic communication devices into the examination room.

Questions 20, 21 and 22 refer to the following scenario

Natasha's dog, Tess, annoys the neighbours with her continual barking. To prevent Tess from barking, Natasha obtained a special collar which sprays an unpleasant but harmless vapour onto Tess' nose whenever she barks. Once the collar was fitted, Tess barked three times and then did not bark again. Soon after the collar was removed, Tess began barking again.

Question 20

In this scenario, the **unpleasant vapour** sprayed onto Tess' nose is a _____ because it has the effect of _____.

- A. punishment; decreasing the response rate
- B. negative reinforcer; increasing the response rate
- C. negative reinforcer; decreasing the response rate
- D. punishment; increasing the response rate

Question 21

The **process** which caused Tess to **stop barking** after the collar was fitted is called

- A. classical conditioning.
- B. observational learning.
- C. operant conditioning.
- D. one trial learning.

Question 22

Once the collar was removed, Tess soon **began barking** again due to a **process** known as

- A. stimulus discrimination.
- B. association.
- C. stimulus generalisation.
- D. extinction.

Question 23

Suki enrolled in typing classes to learn to 'touch type'. During the first lesson the teacher made the class practise typing the letters g, h, f, j, d and k without looking at the keys. The teacher praised Suki for typing the letters correctly. In the second lesson, Suki typed these letters together with the letters e, r, i and o and was again praised for her performance. During the third lesson, another four letters were added to those previously learnt.

The **learning process** used by Suki in learning to type was

- A. observational learning.
- B. shaping.
- C. classical conditioning.
- D. fixed action pattern.

Question 24

Louisa's parents are trying to encourage her to keep her room tidy. At the end of each week, if her room is tidy, they give Louisa \$5 pocket money.

Louisa's parents are applying a **schedule of reinforcement** known as

- A. fixed interval.
- B. fixed ratio.
- C. variable interval.
- D. variable ratio.

Question 25

Joe's parents also want him to keep his room tidy but are using a different method of encouragement. Whenever his room is untidy, Joe is **not** permitted to watch television until he tidies it.

Joe's parent are using _____ to modify his behaviour.

- A. positive reinforcement
- B. modelling
- C. negative reinforcement
- D. shaping

Question 26

Which one of the following statements is **true** about the effectiveness of reinforcement when using operant conditioning to train animals?

- A. The reinforcer must provide a pleasurable consequence for the animal.
- B. The reinforcement must be presented before the desired response.
- C. The reinforcer must be presented within 24 hours after the response.
- D. The reinforcer must be presented every time the desired response occurs.

Question 27

During **operant conditioning**, the learner is _____; whereas during **classical conditioning** the learner is _____.

- A. passive; active
- B. reinforced; not reinforced
- C. active; passive
- D. not reinforced; reinforced

Question 28

In an investigation of aggression in children, three groups of children were exposed to different conditions.

The first group of children (Group A) observed adults, who were unknown to them, behaving aggressively toward some toys.

The second group of children (Group B) observed adults, who were well known sports stars, behaving aggressively toward some toys.

The third group (Group C) was a control group who observed adults playing with some toys in a non-aggressive manner.

The children were then left to play with the toys themselves, while they were observed for the number of aggressive acts they committed.

Which one of the following graphs most likely depicts the results of this investigation?

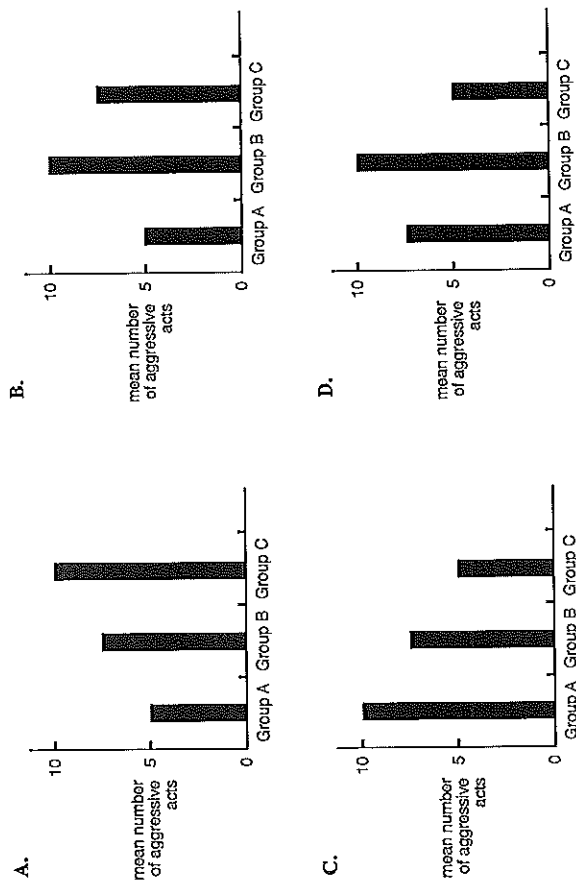


Figure 2

Question 29

A primary school teacher was trying to encourage her students to read more. She decided to reward them by placing a star on a chart for each book they read. When the students had achieved ten stars they were allowed to play games on the class computer for 20 minutes.

The teacher was using _____ to encourage her students to read.

- A. a token economy
- B. partial reinforcement
- C. a learning set
- D. shaping

Question 30

Yasemin was trying to rearrange her bedroom furniture to make room for her new computer desk but was unable to make it all fit. After trying various arrangements, Yasemin decided to take a break and have a cup of tea. Just as she finished her tea, Yasemin thought of a new arrangement for her furniture. She went back to her room and moved her furniture according to this new idea and it fitted perfectly.

The period of time during which Yasemin had a cup of tea could be called the stage of _____ and the period of time when she successfully rearranged her furniture could be called the stage of _____.

- A. preparation; the 'ah-ha' experience
- B. incubation; verification
- C. the 'ah-ha' experience; verification
- D. incubation; the 'ah-ha' experience

AREA OF STUDY 3 – RESEARCH METHODS

Questions 31 and 32 refer to the following information

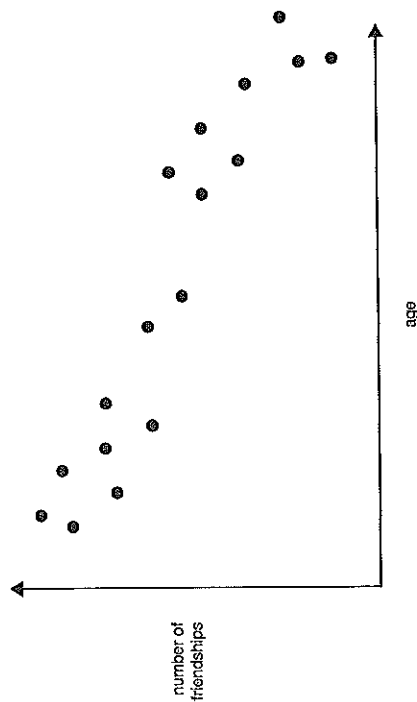


Figure 3

Question 31

The scattergram in Figure 3 shows that

- A. there is a weak negative relationship between a person's age and the number of friendships they have.
- B. there is a strong positive relationship between a person's age and the number of friendships they have.
- C. there is a strong negative relationship between a person's age and the number of friendships they have.
- D. there is a weak positive relationship between a person's age and the number of friendships they have.

Question 32

Which one of the following correlation coefficients most likely corresponds to the data in Figure 3?

- A. .8
- B. -.8
- C. -.3
- D. .3

Question 33

An operational hypothesis is a statement which describes

- A. the size of the study's sample.
- B. the methods which are used to address the research questions.
- C. how the participants in the study will be recruited.
- D. how the study will be statistically analysed.

Question 34

In an experiment on the most efficient methods to teach reading, which one of the following p -values indicates that the difference between the groups is least likely to be due to chance?

- A. $p < .001$
- B. $p < .05$
- C. $p < .01$
- D. $p < .5$

Question 35

In an experiment the double-blind procedure controls for

- A. the placebo effect only.
- B. the experimenter effect only.
- C. the placebo effect and the experimenter effect.
- D. confounding variables.

Question 36

Which of the following is a feature of confidentiality?

- A. Participants are aware of the purpose of the study.
- B. There will be no lasting harm as result of participating in a study.
- C. Participants will have the right to withdraw from the study at any time.
- D. No identifying information will be revealed about the participant in a study.

Question 37

Psychologists use inferential statistics to

- A. carry out multiple experiments.
- B. randomly assign participants.
- C. organise and describe data.
- D. draw conclusions based on research findings.

Questions 38, 39, 40, and 41 refer to following information

Brigit had a theory that people who listened to music while studying for exams spent more time studying than people who don't listen to music while studying for their exams.

Brigit decided to test her theory by asking two teachers to gather information from their Year 12 students. Teacher 1 asked her students to listen to music while studying and record the number of hours they spent studying. Teacher 2 asked his students to not listen to music while studying and record the number of hours they spent studying.

Table 1

Class	listen to music while studying	average time spent studying
Teacher 1, N = 18	yes	15 hours
Teacher 2, N = 22	no	4 hours

When Brigit analysed her data with statistics, she found a significant difference in the length of time spent studying between people who listened to music and people who didn't listen to music while studying ($p < .01$). Brigit concluded that students who listen to music while studying will study for longer periods of time.

Question 38

The independent variable in Brigit's study was

- A. the length of time spent studying.
- B. listening to music while studying.
- C. the year level of the students.
- D. whether or not the teacher is female or male.

Question 39

The dependent variable in Brigit's study was

- A. the length of time spent studying.
- B. listening to music while studying.
- C. the year level of the students.
- D. whether or not the teacher is female or male.

Question 40

What was a major limitation of Brigit's experimental design?

- A. She did not know what marks the students actually got for the exam.
- B. She should have used only males or only female students.
- C. She did not record the age of her participants.
- D. The students were not randomly allocated.

Question 41

Was Brigit's conclusion a valid one?

- A. No, because she cannot determine cause from her experimental design.
- B. No, because the real cause is whether the student is male or female.
- C. Yes, because her results are statistically significant.
- D. Yes, because her data supports her theory.

Question 42

Which one of the following would be the best choice of participants for a matched participants design?

- A. two people selected at random from the general population
- B. a brother and sister who were adopted into different families
- C. identical twins who grew up in the same family
- D. a brother and sister of different ages

Question 43

Which of the following best describes a stratified sample?

- A. a sample that is made up of people from different cultures
- B. a sample of people who are selected for certain characteristics
- C. a sample that equally represents all members of a population
- D. a sample that includes both an experimental and a control group

Question 44

Following an experiment that involved deception, participants were counselled by an expert. This is known as

- A. informed consent.
- B. voluntary participation.
- C. debriefing.
- D. confidentiality.

Question 45

A correlation of .2 indicates

- A. a strong relationship between two variables; one of which increases while the other decreases.
- B. a weak relationship between two variables; one of which increases while the other also increases.
- C. a weak relationship between two variables; one of which increases while the other decreases.
- D. a strong relationship between two variables; one of which decreases while the other also decreases.

AREA OF STUDY 2 – LEARNING**Question 7**

Watson's experiment with 'Little Albert' is considered to be unethical by today's standard. Describe **two** aspects of Watson's experiment which are considered **unethical**.

1. _____

 2. _____

- 2 marks

Question 8

Sally liked playing with dogs until she was bitten by one. Now she runs away in fear whenever a dog approaches her.

Explain Sally's behaviour in terms of the type of conditioning. In your answer **identify** the conditioned stimulus and the conditioned response.

3 marks

Question 9

- i. What is meant by the term **phobia**?

1 mark

- ii. Define the term **stimulus generalisation**.

1 mark

Question 10

Mr Jones was having difficulty keeping order in his Year 9 Maths class. He was giving more frequent and longer detentions to misbehaving students and found he was spending most of his lunchtimes supervising detention. However, the behaviour of his students was not improving; in fact, some students seemed to be amused at being given detention.

- i. Identify the **type of consequence** applied by Mr Jones.

1 mark

- ii. Provide **two** explanations why this type of consequence was ineffective in changing the students' behaviour.

2 marks

Question 11

- i. Give an example of a learning set.

1 mark

- ii. What is meant by a fixed ratio schedule of reinforcement?

1 mark

Question 12

Before Alex had moved out of home, he'd never had to cook for himself. He was keen to show that he could cope on his own and was pleasantly surprised to discover that he actually knew how to cook quite well. He then remembered that he often used to spend time in the kitchen watching his mother while she was cooking.

- i. What type of learning was used by Alex?

1 mark

- ii. Identify two key elements of this type of learning and explain how they helped Alex learn to cook.

2 marks

AREA OF STUDY 3 – RESEARCH METHODS

Question 13

Describe two features of an independent groups design.

2 marks

Question 14

A researcher is interested in the effectiveness of a new drug to reduce the frequency of headaches. Participants in the drug trial reported frequency of headaches over an eight week period. For the first four weeks, participants were not given anything. At the end of Week 4, participants were randomly allocated to either Group A or Group B. From Week 5 to Week 8, participants in Group A were given the headache drug and Group B were given a sugar pill. The results of the trial are shown in Figure 4.

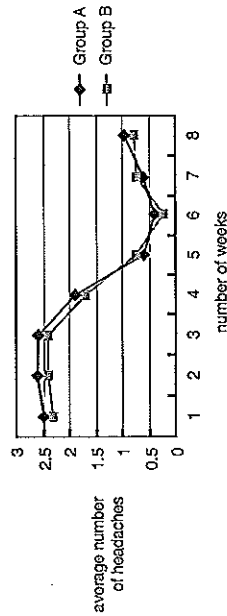


Figure 4

- i. What is the name of the research design used in the drug trial?

1 mark

- ii. What conclusions can the researcher draw about the effectiveness of the new drug? Explain your answer.

2 marks

Questions 15 and 16 refer to the following information

Dr Brodsky was interested in whether the speed at which people drive is related to the tempo of the music they listen to while driving. The tempo of music is its quickness. This is measured by the number of beats per minute (bpm). He conducted an experiment with 28 students who drove in a driving simulator under four conditions:

- condition one involved students driving without listening to music
- condition two involved students driving to music at 40–70 beats per minute (bpm)
- condition three involved students driving to music at 85–110 bpm
- condition four involved students driving to music at 120–140 bpm

The results of Dr Brodsky's experiment are illustrated in Figure 5. When he tested his hypothesis, Dr Brodsky found that his results were statistically significant ($p < .01$).

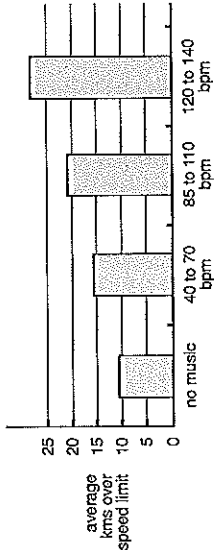


Figure 5

Question 15

- i. What is the name of the design that Dr Brodsky used in his experiment?

_____ 1 mark

- ii. What did Dr Brodsky use as a measure of his dependent variable?

_____ 1 mark

Question 16

- i. What would be Dr Brodsky's conclusion based on the results of his experiment?

_____ 1 mark

- ii. Identify two reasons why the results of the experiment cannot be generalised to all drivers.

_____ 2 marks

Question 17

The following hypothesis was supported with a level of statistical significance of $p < .05$. 'People who are treated by behaviour modification therapy to quit smoking are more likely to be successful than people who are not.'

Explain what $p < .05$ means and how it applies to this hypothesis.

_____ 2 marks

Question 18

How is a single-blind procedure similar to a double-blind procedure? How is a single-blind procedure different from a double-blind procedure? In your answer explain why one of these procedures may be more advantageous than the other.

_____ 3 marks

Psychology GA 3: Written examination 2

GENERAL COMMENTS

Performance on the November paper was of a high standard and the overall results were slightly better than Examination 2 in 2001. Students did well on all sections of the paper although many struggled to explain issues based on theory or were unable to name and distinguish between different research designs. Students demonstrated sound knowledge and understanding of most aspects of the curriculum but many performed below their capabilities by not covering all requirements of the questions in their answers.

In the multiple-choice section all three areas were well answered with mean performance for Memory slightly better than for both the Learning and Research Methods. Performance on the short-answer questions was not as strong and this was often as a consequence of imprecise language, lack of detail, failure to use correct psychological terminology or incompleteness of content in the answers. In questions where both the name and a description or explanation of a psychological concept or key feature was required, no marks were awarded unless both pieces of information were provided. Students should read questions carefully and identify precisely what is required to avoid losing marks unnecessarily in their answers.

Marking policies

Short answer section questions worth 2 marks typically require two key terms or pieces of information. Three mark questions normally require three terms or pieces of information. However, in some questions, two pieces of information, two terms or a name and a description or explanation, are required for each mark (e.g. identify and explain, Question 12) and this is made clear in the question stem.

SPECIFIC INFORMATION

This table indicates the approximate percentage of students choosing each distractor. The correct answer is the shaded alternative.

Multiple-choice questions

This section of the paper was very well answered with mean performance above 70% on all three areas of study. Some of the more difficult questions are discussed.

Memory

Question	A	B	C	D
1	11	1	88	5
2	84	6	6	4
3	1	92	1	6
4	0	91	3	6
5	5	4	88	6
6	2	44	54	2
Although a high proportion of students incorrectly selected Alternative C (<i>chunking information to retain it in short-term memory</i>) there is no suggestion that the information is only being held and retrieved from short-term memory. The correct answer is Alternative B (<i>organisation of information during encoding to help with later retrieval</i>). This answer refers to the processes that operate automatically and quickly when meaningful stimuli such as real words are encoded and which do not apply when meaningless stimuli such as nonsense syllables are presented.				
7	4	11	2	83
8	88	3	1	11
9	94	2	3	1
10	5	11	84	20
11	20	9	6	65
12	31	84	1	1
13	18	3	3	76
14	4	4	69	13
15	87	9	2	2

Learning

Question	A	B	C	D
16	3	89	7	3
17	23	12	49	23
Students did not understand the nature of the association acquired during classical conditioning. An association is developed between the conditioned stimulus (initially neutral with respect to the unconditioned response) and the unconditioned stimulus (correct alternative is C). Due to this association the conditioned stimulus triggers a conditioned response which is similar to the unconditioned response. Students who incorrectly selected Alternative A (<i>conditioned stimulus and conditioned response</i>) demonstrated a misunderstanding of the concepts of association and consequence. The conditioned response is a <i>consequence</i> of the association between the conditioned stimulus (Alternative A) and the unconditioned stimulus. Those who incorrectly selected Alternative D (<i>neutral stimulus and the unconditioned response</i>) failed to appreciate that this link comes only through the association of the neutral stimulus and the unconditioned stimulus.				

18	3	95	1	1
19	7	2	4	88
20	51	11	23	5
Students who incorrectly selected Alternative C (<i>negative reinforcer; decreasing the response rate</i>) misunderstood the operant conditioning procedures of punishment and negative reinforcement. Punishment is the presentation of an unpleasant stimulus, in this case, an unpleasant vapour sprayed onto the dog's nose that weakens or decreases the barking response (correct Alternative A). Conversely, negative reinforcement is the <i>removal</i> of an unpleasant stimulus when the desired behaviour is displayed to <i>strengthen</i> a response.				

21	22	2	88	8
Students had difficulty distinguishing between classical and operant conditioning procedures. In classical conditioning a stimulus, initially neutral with respect to the unconditioned response, is linked to an unconditioned stimulus, to trigger a conditioned response. A temporal pairing or association must be formed between the conditioned and unconditioned stimuli. The behaviour is triggered by the stimulus and is not governed by the consequences of the action, as applies with operant conditioning. In the scenario described in the question, the behavioural outcome (i.e. the dog stops barking) is a consequence of the punishment that follows the behaviour of barking, making Alternative C (<i>operant conditioning</i>) the correct answer.				

22	12	17	3	68
23	5	81	7	7
24	62	23	9	6
The correct answer is Alternative A (<i>fixed interval</i>) because the pocket money reward was administered at regular intervals (i.e. at the end of each week) provided the desired behaviour had been displayed (i.e. maintaining a tidy room).				
25	10	3	81	6
26	59	5	4	52
27	12	20	62	6
28	2	8	9	81
29	59	5	3	2
30	4	63	18	15

Research methods

Question	A	B	C	D
31	10	6	81	3
32	8	68	18	6
33	3	52	7	36
Many students incorrectly thought an operational hypothesis describes how a study will be statistically analysed (Alternative D). The correct answer (Alternative B) an operational hypothesis <i>describes the methods used to address the research question</i> . Statistical analyses are not specified in an operational hypothesis.				

(Question 9ii.) were not well expressed. Most students could not give an example of learning set (Question 11i) or define the fixed ratio schedule of reinforcement (Question 11ii).

Learning			
Question 7	<p>Students had to describe any two of the following aspects of Watson's experiment with 'Little Albert' which are considered unethical: a) possibility of psychological harm to the participant; b) informed consent may not have been obtained from parent; c) not terminating the experiment when Albert became distressed; d) failure to debrief, extinguish/return/decondition Albert to his prior state; e) no allowance for a participant to exercise withdrawal rights; f) non-voluntary participation; g) psychologically vulnerable participant in a study planned to cause distress; and h) lack of confidentiality of a participant's results of the study.</p> <p>This question was quite well answered. As the scenario contained features of classical and operant conditioning as well as one-trial learning any of these three types of conditioning was acceptable for 1 mark. A further 2 marks were awarded for correctly identifying the conditioned stimulus as the dog, and the conditioned response as fear and/or avoidance of dogs. A common error was naming the conditioned response as fear rather than fear of dogs. As fear can be an unconditioned response it was not acceptable in this context.</p>	<p>0/2 12 1/2 34 2/2 53 (Average mark 1.4)</p>	
Question 8		<p>0/3 11 1/3 23 2/3 44 3/3 21 (Average mark 1.75)</p>	
Question 9	<p>i This question was not well answered. For 1 mark, students had to state that a phobia is both an intense and irrational fear of a specific event or object. Many students failed to gain a mark by providing only one of the two key features of a phobia.</p> <p>ii Most students were able to define stimulus generalisation. This occurs when a stimulus similar to the conditioned stimulus produces the same learned response.</p>	<p>i 0/1 53 1/1 47 (Average mark 0.47)</p> <p>ii 0/1 46 1/1 54 (Average mark 0.54)</p>	
Question 10	A well-answered question with most students correctly identifying the type of consequence as punishment.	<p>i 0/1 30 1/1 70 (Average mark 0.70)</p> <p>ii 0/2 47 1/2 33 2/2 21 (Average mark 0.73)</p>	
Question 11	<p>This question was poorly answered. For full marks students had to provide any two of the following reasons why the consequences of punishment was ineffective in this case: a) not harsh/severe enough to weaken the response; b) no alternative (positive) behaviours provided; c) 'attention' from the punisher may be positively reinforcing/rewarding the bad behaviour; d) may lead to a dislike or fear of the punisher; e) may lead to 'avoidance of getting caught' behaviour; f) not administered soon enough after the response; and g) may lead to more aggressive behaviour.</p> <p>Students struggled to give an example of a learning set. Any example of positive transfer of learning from a previous learning situation was acceptable. Possible examples included: a) playing one musical instrument (e.g., the violin) then learning to play another (e.g., guitar); b) playing soccer then learning to play AFL football; or c) learning to speak Spanish then learning Italian. Students who provided a correct definition but no example of a learning set did not gain any marks.</p> <p>This question on fixed ratio reinforcement schedule was poorly answered. Many students confused the fixed ratio and fixed interval schedules or were insufficiently precise in their answers. Students had to state that the fixed ratio schedule of reinforcement awards a reinforcement or reward after a set (fixed) number of correct responses have been carried out.</p> <p>This question was very well answered with most students indicating that the type of learning displayed by Alex was observational learning or modelling. Latent learning was not acceptable.</p>	<p>i 0/1 54 1/1 46 (Average mark 0.46)</p> <p>ii 0/1 53 1/1 47 (Average mark 0.47)</p> <p>i 0/1 10 1/1 90 (Average mark 0.90)</p>	

ii	<p>0/2 54 1/2 8 2/2 37 (Average mark 0.82)</p>	<p>Performance on this question was quite poor. In many cases students failed to provide both the name of the key element and an explanation of how it applied to help Alex learn to cook. Students had to name and explain any two of the following key elements of observational learning: a) attention – watching/observing his mother cook; b) retention – storing in memory what she did while cooking; c) reproduction – replicating (from memory) what his mother did when trying to cook for himself; or d) motivation/reinforcement – the desire to perform what was observed, or desire to be independent/learn to show that he could cope. Students who had incorrectly named the type of learning in Question 12i did not gain any marks in Question 12ii.</p>
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Research methods

Most students could not correctly identify the types of research designs described in the two experiments (Questions 14i and 15i). The key differences between independent groups and repeated measures designs needs to be stressed more strongly with students. This problem was also apparent with many students being unable to describe a single feature of an independent groups design (Question 13). Students could not draw an appropriate conclusion from a set of data and explain their answer (Question 14ii) and others could not name the dependent variable measure used in the driving simulator experiment (Question 15ii). On the positive side, students performed well in explaining the similarity and difference between single- and double-blind procedures and discussing which is more advantageous (Question 18). Most students were also able to draw a correct conclusion from the driving simulator experiment (Question 16i) and many could identify a number of potential weaknesses in the design that limited generalisation of the results (Question 16ii). However, attempts to explain the basis of statistical significance and its relevance to a research hypothesis proved very difficult for many students (Question 17).

Question 13	<p>0/2 47 1/2 37 2/2 17 (Average mark 0.69)</p>	<p>Students had to state that in an independent groups design: 1) participants are randomly allocated to different groups and 2) each group is assigned to only one level of the independent variable, or to the experimental or control condition.</p>
Question 14	<p>i 0/1 62 1/1 38 (Average mark 0.38)</p> <p>ii 0/2 49 1/2 40 2/2 11 (Average mark 0.61)</p>	<p>Most students were unable to correctly name the research design used in the drug trial study as independent groups. This highlights a major weakness in many students' ability to read and interpret the design features of a piece of research. Contained in the description of the study were the two key features of the independent groups design ('... participants were randomly allocated to either Group A or Group B, and Group A were given the headache drug and Group B ... a sugar pill').</p> <p>Students had to provide the following conclusion and explanation: a) the headache drug is no more effective than a placebo (sugar pill), or its true effectiveness is unclear, because b) both the placebo (Group B) and the drug groups (Group A) showed similar reductions in headaches when introduced at the end of Week 4. Answers concluding that the drug was ineffective were not acceptable as this conclusion cannot be drawn from the set of results provided.</p>
Question 15	<p>i 0/1 56 1/1 44 (Average mark 0.44)</p> <p>ii 0/1 58 1/1 42 (Average mark 0.42)</p>	<p>Many students could not name the experimental design used in the driving simulator study as repeated measures despite the clear statement that student participants 'drove ... under four conditions'. Others thought the design was correlational even though comparisons were made between the four driving conditions.</p> <p>Students could not name the dependent variable measure used in the experiment despite it being clearly labelled on the vertical axis of the data set shown in Figure 5. The correct answer is average kilometres (or speed in km/h) over the speed limit. Speed in kilometres alone was not acceptable.</p>
Question 16	<p>i 0/1 21 1/1 79 (Average mark 0.79)</p> <p>ii</p>	<p>Most students correctly drew the conclusion that the faster the tempo of the music listened to by the participants the greater the speed limit was exceeded.</p> <p>Students had to list two of the following reasons why the results could not</p>

Question 3	i	0/1 42 1/1 58 (Average mark 0.58)	The most common flaw in students' answers involved providing only one of the two pieces of information for each memory level. Most students knew that the process of linking new information in a meaningful way is called <i>elaborative rehearsal</i> (or a <i>mnemonic technique</i>).
	ii	0/1 31 1/1 69 (Average mark 0.69)	Many students knew that the process of simple, rote repetition of information to maintain it in short-term memory is called <i>maintenance rehearsal</i> .
Question 4	i	0/2 53 1/2 33 2/2 14 (Average mark 0.6)	This was not well answered either because students failed to provide any answer or because they described the key features of a semantic network too generally. For full marks students had to state: Feature 1: <i>Information is organised systematically in networks of concepts (nodes)</i> ; and Feature 2: <i>Nodes of information are interconnected by meaningful links</i> . Students had to separate the two components (nodes and links) for two marks. A successful answer was: (1) 'information is stored systematically and meaningfully in the form of overlaying networks of concepts (called nodes) and (2) nodes are connected by meaningful links ...'
	ii	0/1 82 1/1 18 (Average mark 0.18)	This question was poorly answered. Students had to provide a two-part explanation of how information is retrieved from long-term memory according to the semantic network theory as follows: a) <i>cues activate the nodes (or concepts) in the network</i> and b) <i>activity then spreads (or activates more nodes) in the network to retrieve related nodes of information</i> . A successful answer was as follows: 'information is retrieved from long-term memory by cues which activate nodes. The more nodes activated, the more chance the correct information is retrieved.'
Question 5	0/2 22 1/2 8 2/2 70 (Average mark 1.47)	This question was quite well answered with most students obtaining 1 mark for stating that procedural memory is <i>memory for skills or knowing how to perform an action or skill</i> . A further mark was awarded for any example of performing a skilled task such as <i>riding a bicycle, playing a sport or playing a musical instrument</i> . Examples which referred to the process of <i>learning or acquiring</i> new skills (e.g. learning how to play a musical instrument) were not accepted. No marks were awarded to students who provided a correct example but gave an incorrect definition of procedural memory; however, 1 mark overall was awarded in cases where the definition was correct but the example was wrong.	
	i	0/2 22 1/2 31 2/2 46 (Average mark 1.23)	Most students could distinguish between the mnemonic techniques of acrostics and narrative chaining. For full marks students had to state the following two pieces of information: a) <i>acrostics – substituting new words beginning with the first letters of the words to be remembered and linking them in a meaningful phrase or sentence</i> ; and b) <i>narrative chaining – linking the to-be-remembered words as key words in a meaningful or bizarre story, paragraph or narrative</i> .
Question 6	ii	0/1 32 1/1 68 (Average mark 0.68)	One mark was awarded for either an acrostic or any other mnemonic technique that linked the items on the shopping list in a meaningful manner. When students named a mnemonic technique in their answers (though not required) their example had to be correct otherwise no mark was awarded. The most common error was confusion between acrostics and acronym mnemonics. Maintenance rehearsal procedures, such as rote learning or repetition, were not accepted as mnemonic techniques.

Learning

Many students were able to identify the process of observational learning (Question 12i) and outline some of the key elements of this type of learning (Question 12ii). Although most students named punishment as the type of consequence used to control misbehaving students (Question 10i) only some were able to explain why punishment may be ineffective in changing the students' behaviour (Question 10ii). The unethical aspects of Watson's experiment with 'Little Albert' (Question 7) were very well considered but definitions of the term 'phobia' (Question 9i) and stimulus generalisation

34	50	17	11	12
35	3	8	8	8
36	1	1	2	58
37	2	4	16	78
38	13	85	2	0
39	83	13	2	0
40	24	3	4	69
Many students could not identify the major limitation in Brigit's experimental design and incorrectly selected Alternative A (<i>she did not know what marks the students actually got for the examination</i>). This variable is irrelevant to the researcher's hypothesis which makes no predictions about examination performance as a function of time spent studying. The major limitation is that the students were not randomly allocated to groups (Alternative D).				
41	27	1	38	34
Students need to understand Brigit's conclusion that students who listen to music while studying will study for longer periods of time is not valid because she cannot determine cause from her experimental design (Alternative A). Many incorrectly thought statistical significance validates Brigit's conclusion (Alternative C) and others thought the conclusion was valid as her data supports her theory (Alternative D). Neither factor can validate a conclusion based on a poor experimental design which contains confounds (e.g. the two groups had different teachers and the lack of random allocation to groups).				
42	8	4	87	1
43	6	63	47	8
Many students incorrectly selected Alternative C (<i>a sample that equally represents all members of a population</i>) as the best description of a stratified sample. However, to meet this requirement, members of all sections of a population would have to be included in the sample and they would have to comprise the same numbers of members so it would not constitute a stratified sample. A stratified sample is a subset of a population comprising people who are selected for certain characteristics (Alternative B) that the researcher believes may be important to the variables being tested.				
44	4	3	51	2
45	17	51	13	9

Short-answer questions

Memory

Most students were able to distinguish between encoding and retrieval processes (Question 1) but fewer could outline two key features of the semantic network theory of memory (Question 4i). Even less students could explain how information is retrieved from long-term memory according to the semantic network theory (Question 4ii). Most students could not describe the differences between the three memory levels in terms of capacity and duration (Question 2) but could correctly label the descriptions of elaborative and maintenance rehearsal and define procedural memory (Question 5). Students could distinguish between the mnemonic techniques of acrostics and narrative chaining (Question 6i) and provide a specific mnemonic to assist recall of a shopping list (Question 6ii).

Question	Marks	%	Response
Question 1	0/2	13	This question was quite well answered with most students knowing that encoding involves <i>converting or transforming information into a meaningful form or code for storage</i> whereas retrieval is the <i>recovery or accessing of information or memories from storage</i> . Describing encoding as a deliberate reorganisation of information was not acceptable as this does not distinguish it from the more active memory strategies associated with elaborative rehearsal.
	1/2	43	
	2/2	44	
	(Average mark 1.3)		
Question 2	0/3	28	This question was not particularly well answered. In describing the relationships between the three memory levels students had to refer both to the capacity and duration of each memory type for full marks. The following information was required: a) <i>sensory memory – unlimited capacity; duration – a fraction of a second to a few seconds</i> ; b) <i>short-term memory – capacity 7 ± 2 chunks of information; duration – 20–30 seconds, if unattended</i> ; c) <i>long term memory – unlimited capacity; duration – relatively permanent, indefinite, or up to a lifetime</i> . Correct information for both capacity and duration was required to gain 1 mark for each memory
	1/3	21	
	2/3	31	
	3/3	20	
	(Average mark 1.42)		

	0/2 1/2 2/2 (Average mark 1.16)	24 36 40	be generalised to all drivers: a) <i>cannot generalise from a driving simulator to actual driving</i> because the task may lack ecological validity; b) <i>age of participants not controlled or representative of all drivers</i> – all participants were students; c) <i>years of driving experience not controlled</i> ; d) <i>carryover effects (e.g. learning) from one condition to another</i> due to repeated measures design; e) <i>participant expectancy effects might have contributed to outcome</i> as can occur with a repeated measures design; f) <i>sample size is quite small compared to the population of drivers</i> ; g) <i>non-random selection of sample participants from the population of drivers</i> – only students were used; and h) <i>gender of participants was not controlled or known</i> .
Question 17	0/2 1/2 2/2 (Average mark 0.73)	46 35 19	Students had to state: a) <i>$p < 0.5$ means the likelihood (or probability) that the results have occurred by chance is less than 5 times in 100, or the results are statistically significant</i> , and b) <i>the hypothesis is supported or accepted</i> . Claims that the hypothesis had been proven correct or true were not acceptable.
Question 18	0/3 1/3 2/3 3/3 (Average mark 1.87)	23 13 17 47	Students had to provide three pieces of information outlining the similarity and difference between single and double-blind procedures and then explain why one may be more advantageous than the other: a) <i>similar feature – participants in both procedures are unaware of the particular condition or manipulation to which they have been allocated</i> ; b) <i>different feature – in a single-blind the experimenter is aware of the conditions participants have been allocated to, but in the double-blind the experimenter (or observer) is unaware of (i.e. is blind to) the conditions imposed on each participant</i> ; and c) <i>the double-blind procedure is more advantageous as it controls for any experimenter/observer bias or expectancy in measuring the dependent variable</i> . For part (c) students had to name the more advantageous procedure and explain their choice for 1 mark.